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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/527,061

03/09/2005

Oliver May

266811US0XPCT

4748

22850

7590

07/21/2008

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

MEAH, MOHAMMAD Y

ART UNIT

PAPER NUMBER

1652

NOTIFICATION DATE

DELIVERY MODE

07/21/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/527,061	Applicant(s) MAY ET AL.	
	Examiner MD. YOUNUS MEAH	Art Unit 1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25, 27-32, 34 and 39-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25, 27-32, 34, 39-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
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| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

In response to a previous Office action (mailed on 11/16/2007), Applicants filed a response and amendment received on 3/17/2008. Claims 25, 31-32, 34, 39-44 are amended. Claims 1-2, 26, 33, 35-38 and 45 remain cancelled. Claims 25, 27-32, 34 and 39-44 are pending in the instant application and will be examined herein.

Applicants' arguments filed on 3/17/2008 have been fully considered. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn.

35 U.S.C 102

Rejection of claims 27-30, and 32 under 35 U.S.C. 102 (b) as being anticipated by Fotheringham et al. (US PAT 5728555) became moot in view of the claim amendments.

CLAIM Rejection - 35 U.S.C 103a

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Rejection of claims 25, 31, 34, 39-44 under 35 U.S.C. 103(a) by Fotheringham et al. (US PAT 5728555) and Altenbuchner et al. (US 6352848) in view of Marceau (JBC 1988, PP

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16916-16933) became moot in view of the claim amendments . However the following New 35 U.S.C. 103(a) rejection is necessitated after applicants' amendments of the claims and the rejection made FINAL.

Claims 25, 27-32, 34, 39-44 are rejected under 35 U.S.C. 103(a) by Fotheringham et al. (US PAT 5728555) in view of Grifantini et al. (US 5877003) and Marceau (JBC 1988, PP 16916-16933)

Fotheringham et al. teaches *E coli* strain having mutated *dada* gene (claim 5-6) wherein said strain does not show D-amino acid oxidase activity. They also used the said strain for the production of D-amino acids, like, D-phenyl alanine, D-serine, D-methionine, D-tryptophan, etc (table 1).

Grifantini et al. (US 5877003) teach recombinant microorganisms (column 5), such as *E. coli*, expressing D-hydantoin racemase and mutant D- carbamoylase genes from *Agrobacterium* and methods of production D-amino acids using said recombinant microorganism (claim 20).

Marceau et al. (JBC 1988, PP 16916-16933) teach the isolation of D-serine dehydratase (*DSDA*) from *E. Coli* and found that inactivating DSD in *E. coli* by mutating amino acid residues of DSD polypeptide decrease the degradation of D-amino acids (such as D serine, D-threonine, etc).

One knowledgeable in prior art is motivated to transform the *E. coli* strain of Fotheringham et al. with D-hydantoin racemase and mutant D- carbamoylase genes from *Agrobacterium* (as taught by Grifantini et al.) and further mutate said *E. coli* strain's *dsdA* gene in order to increase D-amino acid production by decreasing its degradation.

As such it would have been obvious to one of ordinary skill in the art to mutate *dada* gene (taught by Fotheringham et al) , delete or mutate the *dsdA* gene of an *E. coli* (as suggested by Marceau et al) and express said mutant strain with D-hydantoin racemase and mutant D- carbamoylase genes (as taught by Grifantini et al.) so that said mutant *E. coli* strain increases the production of D-amino acid compare to wild type *E. coli* strain.

Regarding claim 31 though Fotheringham et al. do not teach making D-aminobutyric acid using *E coli strain* having mutated *dada* gene (claim 5-6) wherein said strain does not show D-amino acid oxidase activity. In light of production of D-amino acids, like, D-phenyl alanine, D-serine, D-methionine, D-tryptophan, etc (table 1) by the said *E coli* strain, one knowledgeable in prior art is motivated to use Fotheringham et al said *E coli* strain to make D-aminobutyric acid.

As such it would have been obvious to one of ordinary skill in the art to use the *E. coli* taught by Grifantini et al. and modify the microorganism by deleting *dada gene* as taught by Fotheringham and mutating the *dsdA* gene as suggested by Marceau et al. to increase the production of D-aminobutyric acid.

Conclusion

Claims 25, 27-32, 34, 39-44 are rejected.

THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Meah whose telephone number is 571-272-1261. The examiner can normally be reached on 8:30-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NASHAAT T NASHED can be reached on 571-272-0934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mohammad Younus Meah, PhD

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Examiner, Art Unit 1652

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Art Unit 1652